



NEWSLETTER

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1975

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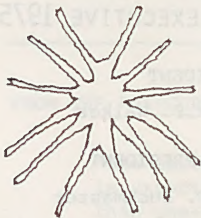
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AUSTRALIAN SOCIETY FOR LIMNOLOGY
NEWSLETTER

VOLUME 13 NUMBER 2 SPRING 1975

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THE AUSTRALIAN SOCIETY FOR LIMNOLOGY

The Australian Society for Limnology is an association of over 200 people with professional or amateur interests relating to Australian inland waters. Since its inception in 1961, the Society has played an important role in fostering limnological work in this country. The ASL also promotes liaison between limnologists in academic, private, and governmental institutions, and has a vested interest in the conservation of aquatic and related resources. Annual congresses are held near centres of limnological interest, and the program includes scientific sessions, field excursions, and social activities.

The ASL publishes a Bulletin, containing scientific articles, a Newsletter, with notes on activities, articles of general interest, book reviews, and congress announcements, and also an occasional Special Publication. A further periodical publication is the Directory of Australian Limnologists.

Membership applications are welcomed; four classes of subscribing membership are catered for:

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* * * * *

Newsletter contributions are always welcome, and correspondence should be addressed to the Newsletter Editor. The next copy deadline is 1 March, 1976.

NEWS

FROM THE "MERCURY" (HOBART) 16.10.75

"The cost of "patching up" leaks in Scotts Peak Dam is expected to total about \$880,000 - slightly less than one-fifth of the original cost of building the rock-fill dam, in Tasmania's South-West.

The Minister for Industrial Development, Mr. Frost, told Parliament the cost of repairs so far totalled \$210,000.

But he admitted it was expected a further \$670,000 would be spent over the next six months to complete repairs.

Mr. Frost was replying to a question from the Opposition spokesman on industrial matters, Mr. Pitt (Bass).

He said the cost to date included \$67,000 for butyl rubber to "plug" leakages, \$83,000 for diving operations, and a further \$60,000 for wages, salaries, and plant equipment.

Mr. Pitt, speaking outside Parliament, said the Government could have avoided much of this cost had it used a different type of rock fill in the dam.

He pointed out that the dam had originally cost \$5,000,000."

* * * * *

URBAN CREEKS CAMPAIGN, MELBOURNE, VICTORIA.

Major moves are underway to save Melbourne's creeks. A community campaign to save urban creeks was launched at a meeting in the Victorian Environment Centre on 11th August. The campaign is being spearheaded by the Conservation Council of Victoria. It is planned that at its height in 1976, there will be hundreds of groups and thousands of people involved.

Volunteers are needed already for the urban creeks campaign so if you can help, contact:

Philip Sutton,
Urban Creeks Campaign,
C/o Conservation Council of Victoria,
324 William Street,
MELBOURNE, 3000.

Phone: 329 5377

Further information on the campaign, including a four page background document, can be obtained from the above address.

FORTHCOMING MEETINGS

But first,

Anybody for a Conference?

A body of biologists

A wing of ornithologists

A litter of geneticists

A colony of bacteriologists

A school of fisheries biologists

A flight of entomologists

and A pool of limnologists!

B.V.T.

* * * * *

A SYMPOSIUM on MICROBIAL ECOLOGY will be held at the University of Otago, Dunedin, N.Z.

Papers are invited within the categories of ecology of soil, water and air and the ecology of organisms associated with plants and animals. Papers presenting new approaches to the subject of microbial ecology will be especially welcome. The programme will be finalised when the organisers have received offers of papers and have assessed the interest expressed in different areas.

Intending contributors are asked to submit a title and if possible, a short precis before 1st Dec., 1975.

Specialists in various branches of microbial ecology are being invited to attend to give lectures.

Any correspondence should be sent to:

The Executive Officer,
The Royal Society of New Zealand,
P.O. Box 12249,
WELLINGTON, N.Z.

The Department of Biology at the University of Wollongong will hold a three-day conference on all aspects of biological energetics, ranging from energy transduction mechanisms at the sub-cellular level to the energetics of agricultural systems and urban societies.
Time: February 4-6, 1976.

Lectures will be given by:

DR. H.J. MOROWITZ (Connecticut),
PROFESSOR SIR RUTHERFORD ROBERTSON (Canberra), and
DR. S. BOYDEN (Canberra)

Symposium titles will include:

Biology energy transduction mechanisms,
Energy of biosynthesis and growth,
Energetics of plants and animals,
Energetics of pristine ecosystems,
Energetics of agricultural systems and
Energetics of industrial and urban systems.

People interested in attending the conference are invited to write to the Conference Secretary (below) indicating whether they also wish to present research material in any area of biological energetics at a poster session.

Further details of the programme, registration, and accommodation arrangements will be included in the second circular.

Dr. R.McC. Lilley,
Secretary,
Conference on Energy in Biological
Systems,
The Department of Biology,
The University of Wollongong,
P.O. Box 1144,
WOLLONGONG. N.S.W. 2500.

* * * * *

EIGHTH INTERNATIONAL CONFERENCE ON WATER POLLUTION RESEARCH

October 17-22, 1976

Details:- Office of Secretariat,
G.P.O. Box 2609,
SYDNEY. 2001.
NEW SOUTH WALES.

ENVIRONMENTAL POLICY AND LAW

This international journal has been created to encourage and develop the exchange of information and experience on all legal, administrative and policy matters relevant to the human and natural environment. It will be concerned in the widest sense with legal and policy aspects of air, water, soil and noise pollution; the protection of flora and fauna; solid waste management; protected areas and land-use control; and development and conservation of the world's non-renewable resources.

ENVIRONMENTAL POLICY AND LAW is sponsored by the International Council of Environmental Law (ICEL), a non-profit making organization. Four issues are published each year, totalling approximately 200 pages per volume. Opinions expressed in this journal are not necessarily those of the Editor nor of ICEL.

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ARTICLES

DO NOT BE AFRAID OF STRANGE RESEARCH TOPICS

by Tomi Petr

Zoology Department, Monash University

Anon. (1974) studied mosquitoes breeding in cemetery flower vases and urns. This study established a preference of *Culex pipiens quinquefasciatus* for laying eggs in urns. A close socio-economic follow-up is needed into the effect of number of urns and vases on the density of human visitors.

Richardson's (1974) paper on dating a water logged coffin indicated that limnology may never gain priority in this research due to the sad fact that more coffins get dumped into seas than into freshwater. Richardson found that the shape of nails, thickness of wood and saturated moisture content are better indicators of coffin age than marine growths.

An analysis of Tigris River pollution in arid Iraq showed that after residues of oil refineries, alcoholic drinks are the second major pollutant (El-Bahli, 1972). A good pollution study of the arid Australian outback is still outstanding but no doubt it might bring interesting data, not necessarily dissimilar from those above.

REFERENCES

- Anon. (1974). Cemetery vases breed mosquitoes. *Agric. Res.* 22: 15.
(ASFA 1974: 11765).
- El-Bahli, M.N. (1972). The Tigris River waters in Bagdad. Symp. on Pollution. Its effects, dangers and means of protection against it in the Arab World, Cairo (Egypt) 22 Apr. 1973: 38-39.
- Richardson, B.A. (1974). Dating a waterlogged coffin. *Med. Sci. Law* 14: 80-86. (ASFA 1974: 8646).
- (ASFA = Aquatic Science and Fisheries Abstracts)

* * * * *

DO NITRATES THREATEN WATER SUPPLY

The following article is reproduced from *British Science News*, May, 1975 No. 125/1. Whilst it is primarily concerned with the situation that has developed in Britain, no doubt a good deal of what it contains will be of some interest to members of the A.S.L. The article is by Anthony Tucker of the *Guardian*, London.

"Tritium, the radioactive isotope of hydrogen with an atomic mass of 3, barely existed on earth until 1954. Then it began to rain steadily down on us as one of the immediate legacies of thermonuclear weapons tests. Indeed, measurements of tritium in rainwater - where the isotope simply substitutes for hydrogen in H_2O and is therefore inseparable in any chemical sense - provide a detailed profile over the last 20 years that forms a kind of diary of bomb-testing.

The profile is unique and is characterised by important and easily distinguished peaks during 1958-9 and 1964-5. Since, in rainwater, the presence of those peaks defines specific dates, the tritium concentration of water can in some circumstances be used as an accurate means of identifying when it reached the surface of the earth as rainfall.

Exactly that principle has been applied by the United Kingdom Atomic Energy Authority (UKAEA) Isotope Tracing Division at Hartwell to the difficult problem of water flow through aquifers. Since about a third of the population of Britain obtains its potable water from chalk or other porous underground aquifers, and the demand for water seems likely to outstrip easily available supplies within the next 15 years, the rate of water flow underground and the possibility of recharging aquifers at times of high rainfall are of more than academic interest.

Before the 1970s, however, it was widely believed that the bulk of water flowing through chalk and other aquifers moved through rapidly by means of the larger fissures. The general view was that water remained in the chalk strata above the water table for a few months at most. Indeed, tests involving 'labelled' water suggested that in some circumstances only a few weeks separated run-off at the surface and reappearance at an aquifer outlet.

But the Harwell studies cast serious doubts upon prevailing beliefs. Measurements of the tritium content of the water in cores taken from chalk strata in Berkshire and Dorset in the South of England, and later in Yorkshire in the North, suggested an entirely different flow pattern. It was found that the 'double peak' of the tritium rainfall profile was repeated in the vertical profile of the unsaturated zone above the aquifers. Different boreholes suggested different downward flow rates, but the overall impression was - and still is - that bulk flow rates of a metre or less per year are normal.

DRINKING OLD RAINFALL?

By calculating the expected tritium content of samples and comparing this to the measured content, the Harwell scientists estimated the proportions of water moving slowly downward through the chalk and that which flowed rapidly through fissures. They suggest that between 65 per cent and 85 per cent of rainfall is slow moving and may take upwards of 20 years to pass through the aquifer system. Other scientists,

including hydrologists from the Institute of Geological Sciences, suggest that the proportion that moves rapidly is normally far larger than the Harwell measurements imply, but this argument does not at the moment have comparable supporting evidence.

The cautious interpretation seems to be that, for much of the water passing through, the aquifer over-burden acts like a giant and near-saturated sponge. When water enters at the top water also leaves at the bottom. But it is not the same water, and any which reaches the base of the porous layer rapidly does so by means of a minor route.

This interpretation carries with it two important implications. First, any contamination entering an aquifer cannot easily be flushed out and will, in the normal course of events, take decades to clear. Second, any contamination entering the porous strata undetected may take upwards of 15 years before it appears at an outlet. It was with the second possibility in mind that water engineers began a tritium-dating examination of the large East Yorkshire system in 1973.

During 1970-72 there had been large but inexplicable increases in the nitrate content of supplies drawn from the chalk groundwaters and in the light of the Harwell findings it seemed possible that Yorkshire in 1972 was drinking rainfall of 1954. Profiles were therefore studied and this year engineers in East Yorkshire tentatively confirmed their belief that hitherto highly stable groundwater supplies were now in some way reflecting a change of agricultural practice that had taken place two decades ago.

Since high nitrate levels in drinking water present specific health hazards, especially to infants, the finding has serious aspects. It was obvious that current increases of nitrate might be only the tip of an iceberg. Since nitrate additions to the land in that area - principally a region of arable farming - had following the steady increases common in all intensive farming regions, the aquifer might produce water of increasing nitrate richness from now on.

The immediate conclusion that this is another hidden cost of agricultural practice aimed at unnaturally high yields is not, however, entirely justified. Research by ICI and other manufacturers of nitrate fertilisers has suggested that the increased run-off associated, with nitrate fertiliser use, even at abnormally high levels of application, is not as large as might be expected. On grassland it rarely exceeds 10.0 parts per million lower than the 11.5 ppm now emerging from Yorkshire's aquifers (after years at around 2.5 ppm). But run-off from fallow land or fields down to clover can, without the addition of any artificial nitrate fertiliser, be surprisingly high.

Measurements made so far at the agricultural research establishment at Rothamsted, Hertfordshire, and at the agricultural research centres of the fertiliser industry - such as ICI's Jealott's Hill laboratories show that, without any addition of nitrate, ploughed land left fallow can have a run-off containing up to 35 ppm nitrate, while run-off from clover fields can average 25 ppm. Although these figures may be misleading, partly because both present special circumstances which will enhance nitrate enrichment of run-off, they suggest that in Yorkshire, and perhaps elsewhere, the steady increase of artificial nitrate additions to the land may not be the sole cause of groundwater enrichment.

In East Yorkshire, for example, the rise might be partly or even largely due to conversion of former grasslands to arable use, a transition which began in earnest in the 1940s and continued throughout the 1950s. This is coincident, of course, with the sharp rise in fertiliser use in the area, and the two events will most probably reinforce each other. But several mysteries remain. Those measurements that have been made of the total nitrate budget of agricultural land suggest that, in some as yet unexplained way, about 50 per cent of applied nitrate disappears without trace. Maybe much more leaches out to low levels in the soil than is believed, or perhaps it becomes securely bound in some way.

None of the scientists involved in aquifer research are yet sure that they have a clear picture of the underground flow pattern. What is certain is that the nitrate problem - remembering that nitrate enrichment of surface waters can lead to accelerated and damaging "blooms" on rivers and lakes - is both difficult to unravel and potentially serious. In Britain research aimed at a better understanding of what is happening is being intensified.

* * * * *

FISH KILLS

The State Rivers and Water Supply Commission of Victoria frequently receives reports of fish kills. In response to these a leaflet was prepared by biologist Barbara Bowles. It is thought to be of sufficient general interest to members of the Society to bear reproduction in this Newsletter.

"You have a fish kill on your hands. Somebody has reported dead fish by the hundreds on the shores of your lake.

What can you do?

Firstly, make sure that the facts have not been exaggerated, by making a personal inspection or sending a reliable colleague. Walk as much of the lake as is practicable, starting for the shore the prevailing wind is blowing to. Most algal scums and other rubbish including dead fish will accumulate here. Take with you several large sample bottles, several small bottles, a bucket, an "esky" with ice, a fish net and some polythene bags.

When you arrive at a site, take note of the state of the lake.

1. Is there any algal scum? If there is, take a small sample, in the thickest part you can reach. If not, please record a negative answer. In either case, fill your large sample bottles with clear water avoiding the scum if one is present.
2. Is the lake turbid with a blue, green, red or brown algal growth? Make a note of the colour and density.
3. Are there any dead fish?

If they are lying on the shore get an idea of the numbers by walking a short way counting your steps and seeing how many fish

there are to each step. Better still count all the fish in a measured area - even better, count all the fish.

4. Did all the fish die at the same time or have some been there a week, and others a few hours? If you can, give some idea of the proportions.
5. If you can find some fish which are still alive but in distress, catch them. These will be more use than anything else. Look at their gills, usually they are bright red, but if the fish are suffering from lack of oxygen, they will be pale. Take them back with you and put some of them in clean water.

Do they recover in about one hour?

Have their gills gone bright red?

If the answer to both questions is "yes", then the fish are suffering from lack of oxygen. This is caused by the algae which release oxygen into the water during the day (photosynthesis) and release carbon dioxide at night (respiration). During the night all the oxygen is used up and the fish suffocate.

If you have a dissolved oxygen meter, you can test this. Measure the oxygen between 12 noon and 5 p.m. and then between 2 a.m. and 5 a.m. You should find that the oxygen will be very high during the day and very low at night.

6. Identify the fish that have died. Trout will die first, followed by Redfin and then Carp. Carp are very resistant to low oxygen levels.
7. Send the samples of algae and water and also the fish, ALIVE or DYING PLEASE, BUT NOT DEAD to the Laboratories immediately.

Put the fish in strong polythene bags with enough water to cover them and pack the bags in an "esky" with plenty of ice around them.

Dead fish cannot be analysed because they start to decompose internally immediately they die. If the kill has been caused by something other than lack of oxygen, we will not be able to tell what it is unless the fish are very fresh. Send up to ten fish of as many kinds as you can find.

8. Remedy: If the cause of death is lack of oxygen and you can spare the expense, an air compressor with a line going into the lake will help. Use it at night only.
9. Angling clubs should always be glad to help in the event of a fish death. Why not ask them to help you collect your samples? They will be delighted to know that an interest is being taken."

For further information, please contact:

Barbara Bowles or Joan Powling,
State Rivers & Water Supply Commission,
Biology Laboratory,
590 Orrong Road,
ARMADALE, VIC. 3143.

Telephone: 509.9511

AMERICAN FISHERIES SOCIETY

For more than a century, the American Fisheries Society has worked to advance fisheries research and management in all its branches. Organized in 1870, the Society has represented both professional and nonprofessional workers in fisheries science and practice.

Through its publications, meetings, and committees, the Society is an energizing force in the conservation, development, and wise utilization of all aquatic resources. Its activities cover a broad front: aquatic biology, economics, engineering, fish culture, limnology, marine ecology, oceanography, and technology.

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The quarterly *Transactions*. Each annual volume of 800 pages contains major articles by fisheries scientists and technologists.

The AFS *Newsletter*. Published bimonthly, it keeps members informed about the activities of the Society as well as developments in the profession.

Special publications of the Society. Some of these books are sold to members at discounts from the regular list prices.

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Interested readers are invited to write for further information to:-

American Fisheries Society,
 4th Floor Suite,
 1319 - 18th Street, N.W.,
 WASHINGTON D.C., 20036. U.S.A.

BOOK REVIEWS

SCIENTIFIC STREAM POLLUTION ANALYSES

BY N.E. NEMEROW

published by Scripta Book Co., Washington D.C. in McGraw-Hill series
Water Resources and Environmental Engineering, \$A18.50, pp. 1-358

REVIEWED BY W.D. WILLIAMS, UNIVERSITY OF ADELAIDE

Reading this book has brought home to the reviewer, above all, how naive some professors of civil engineering specialising in sanitary engineering can be about biology, and how deficient can be the basic training in the "precise sciences" of many a freshwater biologist. Thus, biologists will be amazed to read (p.28) "Algae differ from microscopic animal life in our water bodies in their mode of respiration" and, on the same page, that "algae are ubiquitous and rather resistant to complete elimination". On the other hand, I suppose that there will be few freshwater biologists who will be able easily to follow Chapter 4 (Mathematics involved in predicting stream pollutant deoxygenation rates); this reviewer certainly had difficulty.

The author, if one believes the cover-jacket (and there isn't any reason not to), is an active, energetic and respected worker. He has, however, written a book that many will find irritating; irritating in style ("your author"!), content matter (e.g. undigested Sladacek on pages 14-19) and the number of typographical errors (many). The book has all the appearances of a set of lecture notes rather too carelessly put together for publication. The definitive text on scientific stream pollution analysis has yet to be written; Nemerow's book isn't it.

Perhaps as a sophisticated biologist (!) I am being too harsh. The book does indeed have much useful material and certainly there are many tables and other matter which are useful to have readily assembled between hard covers, e.g. the numerous tables on various water quality criteria. I seriously suggest that you prevail on your library to buy a copy, but suggest you save your own money for better things. For my own part, I thank the publisher for the copy I retain and I shall avoid approaching too closely to Syracuse University where Nemerow teaches.

* * * * *

ENVIRONMENTAL QUALITY

COPPOCK, J.T. AND C.B. WILSON (EDS.)

Scottish Academic Press 1974, \$A12.15, 207 p., SBN 7011 2032 0

REVIEWED BY ROD BUCKNEY, UNIVERSITY OF ADELAIDE

This book presents fourteen papers from a conference on environmental quality sponsored by the School of the Built Environment, University of Edinburgh, of which the editors are respectively Ogilvie Professor of Geography and Professor of Architectural Science. The contributors are from a wide variety of disciplines; predictably, the attitudes presented and the styles and standards of presentation are extremely varied. Only one chapter is unreferenced.

The book is introduced as a discussion of three major themes; (i) the effects of urbanisation on the physical character of city environments and on the inhabitants, (ii) the perceptions and preferences of these inhabitants, and (iii) the problems of "achieving environmental quality". These three themes are unfortunately presented in an almost random way; some of the later chapters provide the rationale for the approach adopted in earlier ones. Indeed, it is sometimes not clear which of the themes a particular chapter deals with. The book could profitably be presented in three sections.

Two chapters deal with medical problems associated with urban life. Chapter 4 is somewhat repetitive, but develops well the argument for programmes to eliminate the gradient between rural and urban incidences of respiratory and other diseases. A brief section on infant mortality forcefully demonstrates one effect of overcrowding. Chapter 10 analyses information on suicidal behaviour in an urban area. This is an easy chapter to read and it convincingly makes the point that suicidal behaviour is a function of personal development rather than environment *per se*.

Three chapters compare and contrast the different and changing attitudes of inhabitants and various professionals to the problems confronting them. These papers are particularly well presented and thought-provoking; the paper by W.R.D. Sewell should start any professional person on a bout of soul-searching.

Six chapters are devoted to descriptions of techniques for the acquisition of data on subjective responses and their quantification as well as to the physical effects of urban structures on such variables as air pollutant levels. These are technically informative chapters which do much to demonstrate the complexity of urban systems and the difficulties they present to planners, architects, engineers, etc.

These chapters, however, convey many attitudes and assertions that the reviewer found difficult to justify. The objectification of subjective terms (e.g. amenity, quality, etc.) is common. While the scope of the book is necessarily restricted, terms such as "natural pollution" and "beneficial effects" of pollution exemplify a homocentric bias which will do little to comfort those that are connected with wider

environmental issues. Throughout, there is evidence of an almost Pharisaical enshrinement of existing economic and administrative policies, standards and institutions, and of the "growing technology which facilitates the assessment of human feelings and enables better judgements and decisions to be made". This approaches that peculiar rationalist obsession which requires that all decisions be justifiable in logical or even quantitative terms. These chapters are partially offset by the final two chapters of the book.

Chapter 13 analyses some of the problems confronting local governments. It does not shirk the task of presenting ethical and moral issues. The social and political restraints on action are clearly outlined. The last chapter ('Lies, Damned Lies and Decision-Making') includes examples of the inconsistencies which emerge when adopting standards and values which might reflect the attitudes and aspirations of only a few people. The tone of this chapter is neatly presented in the statement: "... to assume that sophisticated statistics will obviate the ultimately ethical and moral beliefs which are central to the political drama is to confuse means with ends and perhaps fatally blur the distinction between them."

The questions raised by this book are probably much more important than the ones it answers. It is not a book which will interest everyone, but it sheds light on areas of environmental action and on questions which will occupy many people for a long time.

RIVER POLLUTION

A number of zonal classifications for polluted rivers have been proposed. Most of these have had a regional bias (e.g. the Sabroben system). Australia so far lacks its own zonal system. To remedy this the following classification is proposed. No criteria are needed. (With apologies to P. Gent.)

- I Loincloth zone
- II Armpit zone
- III Shit creek zone
- IV Exceptionally nice type of water zone

* * * * *

CONSERVATION

PROCEDURE FOR INTRODUCING A CONSERVATION ISSUE FOR SUPPORT BY THE AUSTRALIAN SOCIETY FOR LIMNOLOGY

The following procedure was adopted by the Executive Committee at its meeting on November 3, 1975.

Members who wish to obtain the Society's support for the conservation of particular areas, should:-

1. Inform the Society Secretary of their intention, not later than, one month before the annual meeting. The Secretary will circulate this information to Society members.
2. Prepare for and present to the Society's annual meeting a 15-20 minute paper pointing out the limnological value of the site, and recommendations for its use.
3. At the Annual General Meeting the President will take a vote to determine if the Society supports all or part of the recommendations and if the matter is a Federal or State issue.
4. If the Society's approval is given, the President in conjunction with the primary author should channel their Federal recommendations through the Director of the Australian Conservation Foundation or State matters through the appropriate State Conservation Society (i.e. in South Australia, The Nature Conservation Society of South Australia).

QUOTABLE QUOTES

~~~~~  
 For the benefit of up-and-coming Limmologists:  
 ~~~~~

How to win promotion

"The gates of fame are open wide
 Its halls are never full
 And some go in by a door called 'Push'
 And some get in by 'Pull'

(i) How to acquire 'Pull'

- a) Find a patron
- b) Motivate that patron (put him on an inclined plane or better still an elevated plane)
- c) Get out from under (the patron)
- d) Be flexible (bend the patron)
- e) Obtain multiple patronage (usually only possible with self-replicating patrons)

(ii) How to 'Push'

- a) Try onward and upward (preferably under the back-side)
- b) Use positive thinking (preferably in a negative way so as to maximise feedback)

But remember - 'Pull' and the world pulls with you,
 'Push' and you push on your own. So never push when
 you can pull - that's what they call a pull-over
 (v. push-over).

~~~~~  
 For the Engineers:  
 ~~~~~

"He was a practical man. He wasn't an engineer."

Ian Sandford (Gutteridge, Haskins
 & Davey Pty. Ltd., Consulting Engineers)

[Ed. Sorry Ian old pal]

~~~~~  
 For those who know Rod Buckney:  
 ~~~~~

"The Atomic Absorption Spectrophotometer was very ably
 demonstrated by technical assistant Rodney Buckney."

"Results showed that, on account of copper concentration,
 it was safer to drink beer than tap water in Adelaide University."

LETTERS TO THE EDITOR

Zoology Department,
 Monash University,
CLAYTON. 3168.
VICTORIA.

19th July 1975.

Dear Editor,

Could you please supply in your next edition of the A.S.L. Newsletter details of the marital status and appearance of the male members of the Zoology Department at Adelaide University. I note that in the last Newsletter (Vol. 12, No. 4) this information is only given in regard to the females. As the information is necessary in "indicating more precisely the interests and research activities" of the Adelaide limnologists, I hope the situation will be rectified⁽¹⁾.

Yours sincerely,

(sgd.)
 Ms. Luisa Macmillan.

(1) From 'News from Adelaide' A.S.L. Newsletter, Vol. 12, No. 4.

[Ed. K.F. Walker, ugly, married, 15 children
 M.C. Geddes, sweet-boy, married, no children known to wife
 J.E. Bishop, scruffy but fit, no children
 R.T. Buckney, thrice-married, no children
 R. Marchant, unspeakably ugly, no children (no wonder)
 W.D. Williams, incredibly handsome, two fine children, married
 status of no concern
 Honours students (no data available, sex indeterminate)]

Will this do, madam?]

Irrigation Research & Extension
Committee,
Murrumbidgee Irrigation Area
Associated Districts and
Coleambally Irrigation Area.

Dear Professor Williams,

I would refer to your letter of 22nd May, 1975, advising that you are now Editor of the Australian Society for Limnology Newsletter.

With respect to the work of our Elodea Sub-committee I would advise that at this stage no formal reports have been prepared. However I attach a copy of minutes of the last meeting of the Sub-committee, and you may like to use some of the material contained therein if applicable.

Thank you for your interest in this matter.

Yours faithfully,

B.E.R. Caldwell,
SECRETARY.

[Ed. The Minutes are reproduced in full below]

IRRIGATION RESEARCH AND EXTENSION COMMITTEE

MINUTES OF A MEETING OF THE ELODEA CO-ORDINATION CONTROL
SUB-COMMITTEE HELD ON THURSDAY, 22ND MAY, 1975, AT 10 A.M.

PRESENT: Mr. R. Sainty - Acting Chairman
Dr. K. Bowmer - C.S.I.R.O.
Mr. M. Dickens - W.C. & I.C. Deniliquin
Mr. B. Elliott - W.D. & I.C. Leeton
Mr. E. Hoare - C.S.I.R.O.
Mr. G. Sainty - W.C. & I.C. Griffith
Mr. G. Smith - W.D. & I.C. Griffith
Dr. B. Steer - C.S.I.R.O.
Mr. B.E.R. Caldwell - Secretary

APOLOGIES: Apologies were received from Messrs. Clampett, Crook, Honybun, Milvain, Swain (Department of Agriculture) and Swain (Ciba-Geigy).

MINUTES: The minutes of the meeting held on 10th December, 1974, having been circulated were taken as read.

Dr. Bowmer pointing the following correction:-
Page 2 Farm 588 "0.059" instead of "0.0059"

Moved Dr. Bowmer, seconded Dr. Steer: That the minutes as corrected be confirmed.

CARRIED

BUSINESS The Secretary reported that Business Arising from the minutes ARISING: would be dealt with during the meeting.

CORRESPONDENCE: ICI (4) ICI Australia Limited - Report on Evaluation of Residual Effects of Rice of Herbicides used to control *Elodea canadensis*.

The report was received and noted and it was agreed that ICI be thanked for their work.

It was Mr. Sainty's opinion that the chemicals studied by ICI were not likely to be widely used for *Elodea*.

C.S.I.R.O. 4(e) Dr. Bowmer also presented a paper entitled "Residues of Dichlobenil in Irrigation Water after Application to control *Elodea canadensis*".

Main safety factor in using dichlobenil was the decay of the material between application and flushing. However the results were in a very wet year - does not mean it would always be safe. Main loss is by evaporation aided by wet conditions.

4(b) C.S.I.R.O. Memorandum 10/2/75.

Dr. Steer's memorandum outlining 7 points was discussed, and were dealt with as follows:-

Point 1: A survey to establish distribution of *Elodea* was about to take place.

Point 2: Dr. Steer had met Mr. Betts last week. Mr. Betts had now received some acrolein and it was hoped data would soon be available.

Point 3: The bibliography was on line in the computer.

Point 4: A school leaver technical assistant has been working on this matter for 3 months.

Method of assay is to use a vital dye - gives a red colour if any viable cells.

Technique has been to use 4 tubs, then drain 2 tubs and subject all 4 to different temperature regimes. Afterwards tubs are then rehydrated and observed for growth.

Results to date showed that at low temperatures *Elodea* is remarkably persistent whilst at higher temperatures it is virtually killed.

Mr. Sainty made the point that draining back is at least equivalent to an acrolein treatment. If draining can take place at any time - growth will at least be cut back to ground level.

SHIRES: Dr. Bowmer read a letter from the Wade Shire expressing concern at advice from the W.C. & I.C. regarding the difficulty of treating *Elodea*.

Mr. Sainty stated that W.C. & I.C. had raised the alarm as there is concern that the W.C. & I.C. will want to and will have to, treat the system sometime in the future. Some future provisions will need to be made. Mr. Sainty said that if it were not necessary to provide ponding for the towns - then probably the current problems would not exist.

Moved Mr. Sainty, seconded Mr. Sainty: That the Shires of Wade, Leeton and Murrumbidgee be invited to send representatives to meetings of the Sub-committee.

CARRIED

Point 5: There was no report yet on *Elodea* performance in different channel conditions.

Point 6:

Point 7: It was not envisaged that either of these points would be investigated at this time.

The meeting agreed that the C.S.I.R.O. report be received and noted.

4(c) G.B. Baldwin, S.A. Department of Adelaide. It was agreed that the Department be placed on the mailing list.

4(d) W.A.H. Molesworth L2/4/75. It was agreed that Mr. Crook be invited to take Mr. Molesworth's place on the Sub-committee.

4(f) Dr. Swarbrick L17/5/75. It was agreed that the next meeting be organised so that if possible Dr. Swarbrick could attend.

REPORTS:

W.C. & I.C.: Mr. Sainty reported that there was now a full-time inspector in the C.I.A.

Light to very heavy infestations were still evident on a number of farms.

In June it was proposed to treat these infestations with dichlobenil and/or chlorthiamid, with some Fenac.

FIELD DAY: In principle it was agreed that a Field Day could be conducted to demonstrate the technique of draining and drying. The problem of residues and flushing could also be discussed.

WINTER TREATMENTS: Mr. Sainty sought the concurrence of the sub-committee to use chlorthiamid and fenac - both unregistered. It was intended to put them on in early July, with aim to achieving a maximum 6 week period before flushing.

Moved Mr. Hoare, seconded Mr. Sainty: That the I.R.E.C. *Elodea* Co-ordination Control Sub-committee recommends that chlorthiamid and fenac be used at specific sites where a minimum time of at least 6 weeks between application and flushing can be obtained and where full flow flushing for four (4) hours at the take-off point can be achieved prior to required irrigation.

CARRIED

MURRAY: Mr. Dickens reported briefly on the Murray Irrigation District situation.

The W.C. & I.C. is now treating 1500 km per year. Between \$38,000 to \$40,000 is spent annually on acrolein. One of the best methods of control is to drain - draining means one less chemical treatment.

Dr. Steer agreed to carry out some tub experiments in the field, with Mr. Sainty to provide information on a useful site.

THE MEETING CLOSED AT 12.30 P.M.

* * * * *

JOINT ASL-NZLS CONGRESS

The following is an extract from a letter from Carolyn Burns, Secretary/Treasurer of the New Zealand Limnological Society.

"This note is to let you know that, after protracted consultations, negotiations etc. the N.Z.L.S. has decided to hold the next meeting in Christchurch, 20-24 August 1976.

Unfortunately, the overlap of the various University vacations by only one week, and the presence of a conference on water quality in Christchurch in this same week left very little room for manoeuvring. We hope that the venue and dates will be acceptable to A.S.L. members who wish to attend.

We have made a block booking for accommodation in one of the University's halls of residence. Rates will probably be about \$12.00 per day for full board or \$10-25 for bed only."

ASL CONGRESS

XV CONGRESS, TANUNDA, BAROSSA VALLEY 7-10 MAY

Apologies for the delay in providing information about the 1976 Congress but it has now been agreed that the Barossa Valley is the best spot for the conference. We have booked the conference facilities at the Weintal Hotel-Motel at Tanunda for the weekend 7-10 May. The conference room at the Weintal has all modern amenities and is well suited to a group of our size. It should give the opportunity for papers to be clearly presented and freely discussed.

The Weintal is opposite Leo Buring, Veritas and Bernkastel wineries so when arriving on Friday or departing Monday you'll find wine tasting only a short walk away. And of course there are all the other wineries in the Barossa area to call in on when travelling to and from the conference. The Weintal can accommodate up to 90 people at approximately \$8.00 per day per person in a twin or double room; breakfast will be an extra charge. We have booked a couple of on-site vans and a few camping sites at a camping area 1,000 m from the conference centre for those who want that less expensive form of living. Further accommodation is available in Tanunda if we need it.

The Congress Dinner on Saturday night will be at Die Gallerie Restaurant in Tanunda. With a little help from Fred Reynolds and South Australian Fisheries the restaurant hopes to put on S.A. yabbies as a starter, followed by roasts from their bakers oven.

In travelling to and from the conference it is hoped that people flying from Sydney (and ex places north) and Melbourne (and ex Tasmania) will be organized into group flights. Bus transport from Adelaide Airport to Tanunda (approx. 70 km) can then be arranged. People arriving in Adelaide other than with the group flights can find transport in cars leaving from Adelaide on the Friday. Please let us know how we can assist you in travelling to the conference.

Please fill in the conference Registration Form enclosed with this Newsletter and we look forward to seeing you all at what promises to be an enjoyable and profitable XV Congress.

CALL FOR PAPERS: ASL XV CONGRESS SOUTH AUSTRALIA, 1976

Members are invited to submit papers for presentation at the 1976 ASL meeting to be held in South Australia from 7-10 May. The Form for submission of papers is enclosed with this Newsletter.

Given sufficient support, one session will be devoted to papers concerned with limnology of the River Murray. This session would commence with a "keynote" address by an invited speaker.

Titles and abstracts (200 word maximum) of proposed papers should reach the Organizing Committee no later than 1 March. Papers may be of 10, 20, or 30 minutes duration.

Members should appreciate that time may not be available for all papers to be delivered, and the Committee may need to be selective. Intending speakers will be notified of acceptance or otherwise in March.

Abstracts will be distributed at the meeting, and subsequently included in the Newsletter.

A blackboard, slide projector, and overhead projector will be available. Please inform the Committee of any additional needs.

Arrangements may be made to distribute supporting data or diagrams in cyclostyled form if necessary. Again, please notify the Committee beforehand, so that this material may be bound with the abstracts.

* * * * *

STOP PRESS:

It is with great sadness that I have to tell members of the Society that Hilary Jolly died on the 30th October. She was only really ill for about a month with cancer together with secondaries in the liver, but died from a pulmonary infection. Apparently she was able to finish off two papers with Ann Chapman before she went into hospital.

ED.

